

I claim:

1. An error logging and analysis system, comprising:
  - an error detection unit;
  - an error logging device; and
  - an error analysis unit;

wherein, within a period of time, the error detection unit is adapted to detect a first occurrence of a particular type of fault condition,

the error detection unit is adapted to determine a first time of the first occurrence,

the error detection unit is adapted to assign an initial error severity weight to the first occurrence,

the error logging device is adapted to record the first time and the initial error severity weight,

the error detection unit is adapted to detect a second occurrence of the particular type of fault condition,

the error detection unit is adapted to determine a second time of the second occurrence,

the error logging device is adapted to record the second time,

the error analysis unit is adapted to determine a first interval between the first occurrence and the second occurrence,

the error analysis unit is adapted to generate a first error frequency factor related to the first interval,

the error analysis unit is adapted to generate a first weighted error rate that is a first function of the initial error severity weight and the first error frequency factor.

2. The error logging and analysis system of claim 1, wherein, within the same period of time, the error analysis unit is adapted to compare the first weighted error rate to a first predetermined threshold.

3. The error logging and analysis system of claim 2, wherein, if the first weighted error rate exceeds the first predetermined threshold, the error analysis unit is adapted to determine that the first weighted error rate is statistically significant.

4. The error logging and analysis system of claim 1, wherein:  
the error logging device is adapted to subsequently record the first weighted error rate;

the error detection unit is adapted to detect a third occurrence of the particular type of fault condition;

the error detection unit is adapted to determine a third time corresponding to the third occurrence;

the error logging device is adapted to record the third time;

the error analysis unit is adapted to determine a second interval between the second occurrence and the third occurrence;

the error analysis unit is adapted to generate a second error frequency factor related to the second interval;

the error analysis unit is adapted to generate a second weighted error rate that is a second function of the initial error severity weight, the second error frequency factor, and the first weighted error rate.

5. The error logging and analysis system of claim 4, wherein the error analysis unit is adapted to compare the second weighted error rate to a second predetermined threshold.

6. The error logging and analysis system of claim 5, wherein, if the second weighted error rate exceeds the second predetermined threshold, the error analysis unit is adapted to determine that the second weighted error rate is statistically significant.

7. The error logging and analysis system of claim 2, wherein the error logging device is adapted to record the second weighted error rate.

8. An error logging and analysis system, comprising:

a processing device; and

a memory device;

wherein the processing device is adapted to detect a first occurrence of a particular type of fault condition,

the processing device is adapted to determine a first time of the first occurrence,

the processing device is adapted to assign an initial error severity weight to the first occurrence,

the memory device is adapted to record the first time and the initial error severity weight,

the processing device is adapted to detect a second occurrence of the particular type of fault condition,

the processing device is adapted to determine a second time of the second occurrence,

the memory device is adapted to record the second time,

the processing device is adapted to determine a first interval between the first occurrence and the second occurrence,

the processing device is adapted to generate a first error frequency factor related to the first interval,

the processing device is adapted to generate a first weighted error rate that is a first function of the initial error severity weight and the first error frequency factor.

9. The error logging and analysis system of claim 8, wherein:

the memory device is adapted to record the first weighted error rate;

the processing device is adapted to detect a third occurrence of the particular type of fault condition;

the processing device is adapted to determine a third time of the third occurrence;

the memory device is adapted to record the third time;

the processing device is adapted to determine a second interval between the second occurrence and the third occurrence;

the processing device is adapted to generate a second error frequency factor related to the second interval;

the processing device is adapted to generate a second weighted error rate that is a second function of the initial error severity weight, the second error frequency factor, and a percentage of the first weighted error rate.

10. The error logging and analysis system of claim 8, wherein the processing device is adapted to compare the first weighted error rate to a first predetermined threshold.

11. The error logging and analysis system of claim 10, wherein if the first weighted error rate exceeds the first predetermined threshold, the processing device is adapted to determine that the first weighted error rate is statistically significant.
12. The error logging and analysis system of claim 9, wherein the processing device is adapted to compare the second weighted error rate to a second predetermined threshold.
13. The error logging and analysis system of claim 12, wherein if the second weighted error rate exceeds the second predetermined threshold, the processing device is adapted to determine that the second weighted error rate is statistically significant.
14. The error logging and analysis system of claim 9, wherein the memory device is adapted to record the second weighted error rate.
15. The error logging and analysis system of claim 8, wherein said processing device is a computer processor.
16. The error logging and analysis system of claim 8, wherein said memory device is a random access memory integrated circuit.

17. A method of detecting, recording, and analyzing error conditions, comprising the steps of:

detecting a first occurrence of a particular type of fault condition;

determining a first time of the first occurrence;

assigning an initial error severity weight to the first occurrence;

recording the first time and the initial error severity weight;

detecting a second occurrence of the particular type of fault condition;

determining a second time of the second occurrence;

recording the second time;

determining a first interval between the first occurrence and the second occurrence;

generating a first error frequency factor related to the first interval; and

generating a first weighted error rate that is a first function of the initial error severity weight and the first error frequency factor.

18. The method of claim 17, further comprising the steps of:

recording the first weighted error rate;

detecting a third occurrence of the particular type of fault condition;

determining a third time of the third occurrence;

recording the third time;

determining a second interval between the second occurrence and the third occurrence;

generating a second error frequency factor related to the second interval;

generating a second weighted error rate that is a second function of the initial error severity weight, the second error frequency factor, and a percentage of the first weighted error rate.

19. The method of claim 17, further comprising the step of comparing the first weighted error rate to a first predetermined threshold.

20. The method of claim 19, further comprising the step of determining whether the first weighted error rate is statistically significant.

21. The method of claim 18, further comprising the step of comparing the second weighted error rate to a second predetermined threshold.

22. The method of claim 21, further comprising the step of determining that the second weighted error rate is statistically significant.

23. The method of claim 18, further comprising the step of recording the second weighted error rate.



24. An article of manufacture including a data storage medium that includes a collection of machine-readable instructions that are executable by a processing device to implement an algorithm, said algorithm comprising the steps of:

detecting a first occurrence of a particular type of fault condition;

determining a first time of the first occurrence;

assigning an initial error severity weight to the first occurrence;

recording the first time and the initial error severity weight;

detecting a second occurrence of the particular type of fault condition;

determining a second time of the second occurrence;

recording the second time;

determining a first interval between the first occurrence and the second occurrence;

generating a first error frequency factor related to the first interval; and

generating a first weighted error rate that is a first function of the initial error severity weight and the first error frequency factor.

25. The article of manufacture of claim 24, further comprising the steps of:
- recording the first weighted error rate;
  - detecting a third occurrence of the particular type of fault condition;
  - determining a third time of the third occurrence;
  - recording the third time;
  - determining a second interval between the second occurrence and the third occurrence;
  - generating a second error frequency factor related to the second interval;
  - generating a second weighted error rate that is a second function of the initial error severity weight, the second error frequency factor, and a percentage of the first weighted error rate.
26. The article of manufacture of claim 24, further comprising the step of comparing the first weighted error rate to a first predetermined threshold.
27. The article of manufacture of claim 26, further comprising the step of determining whether the first weighted error rate is statistically significant.
28. The article of manufacture of claim 25, further comprising the step of comparing the second weighted error rate to a second predetermined threshold.

29. The article of manufacture of claim 28, further comprising the step of determining that the second weighted error rate is statistically significant.

30. The article of manufacture of claim 25, further comprising the step of recording the second weighted error rate.